

IN THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A lens shutter for digital still cameras comprising:

a motor having a stator including an energizing coil, having a permanent magnetic rotor ~~capable of reciprocatingly moving by~~ movable for a predetermined angle from angular range between an initial position ~~correspondingly to~~ and a final position in accordance with a direction ~~in which~~ of a current is supplied to said coil, and having a driving pin integrally provided with said rotor and extending in parallel with a rotary shaft of said rotor;

at least one diaphragm blade ~~being operative to follow said driving pin, capable of, said diaphragm blade leaving a circular exposure aperture fully open when said rotor is in the initial position,~~ moving to a predetermined exposure aperture regulating position as following said driving pin when said rotor moves from the initial position, and ~~operative, to be being~~ returned by said driving pin to a fully opened position of a the circular exposure aperture when said rotor returns to the initial position;

a first forcing ~~means capable of pushing~~ member constructed and arranged to urge said diaphragm blade ~~to move said diaphragm blade to~~ toward said exposure aperture regulating position;

a stopper constructed and arranged to keep said diaphragm blade at the exposure aperture regulating position;

at least one shutter blade ~~capable of fully opening,~~ said shutter blade leaving said exposure aperture fully open when said rotor is in the initial position, ~~and capable of operating moving~~ together with said driving pin to ~~open and~~ close said exposure aperture while said rotor ~~reciprocatingly moves~~ from the initial position to the final position, and moving together with said driving pin to be returned to the fully open position of said exposure aperture while said rotor returns to the initial position;

a second forcing ~~means capable of pushing~~ member constructed and arranged to urge said rotor ~~to cause said rotor to return from a closed position in which said exposure aperture is~~

closed against a movement for the final position at least during a period from a state where said diaphragm blade is caused by said first forcing member to abut on said stopper at the exposure aperture regulating position till a state where said exposure aperture is closed by said shutter blade, and ~~capable of stopping to stop~~ said rotor at a rotational position corresponding to the exposure aperture regulating position ~~in cooperation with said first forcing means~~ when said rotor is in vicinity of the rotational position ~~and corresponding to the exposure aperture regulating position with~~ the current to said coil is being interrupted; and

magnetic holding ~~means~~ components respectively disposed at plural places facing a peripheral surface of said rotor, and capable of maintaining the stopped position of said rotor by a magnetic force of said rotor, which acts from said rotor thereto, in a fully opened state and a closed state of said exposure aperture even when the current to the coil is interrupted.

2. (Currently Amended) A lens shutter for digital still cameras according to claim 1, wherein said magnetic holding ~~means comprises~~ components comprise at least one first magnetic material member disposed so that, under the state in which said exposure aperture is fully opened, said rotor is rotated by the magnetic force in a direction in which said shutter blade is moved to open said exposure aperture, and at least one second magnetic material member disposed so that, under the state in which said exposure aperture is closed, said rotor is rotated by the magnetic force in a direction in which said shutter blade is moved to close said exposure aperture.

3. (Currently Amended) A lens shutter for digital still cameras according to claim 2, wherein said magnetic holding ~~means~~ components further ~~comprises~~ comprise at least one defective portion formed in a yoke which is disposed so as to surround the peripheral surface of said rotor, and provided at a place where the rotor is rotated by the magnetic force in a direction in which said shutter blade is moved to open said exposure aperture, and positioned so that said rotor is rotated by the magnetic force in a direction in which said shutter blade is moved to open said exposure aperture, under the state in which said exposure aperture is fully opened, and positioned so that said rotor is rotated by the magnetic force in a direction in which said shutter blade is moved to close said exposure aperture, under the state in which said exposure aperture is closed.

4. (Currently Amended) A lens shutter for digital still cameras according to claim 1, wherein said diaphragm blade is a single diaphragm blade having an aperture of a diameter smaller than that of said exposure aperture.

5. (Currently Amended) A lens shutter for digital still cameras according to claim 1, wherein said shutter blades are two shutter blades actuated by said driving pin so as to relatively operate.

6. (Currently Amended) A lens shutter for digital still cameras according to claim 1, wherein said first forcing ~~means~~ member comprises a diaphragm actuating member connected to said diaphragm blade and rotatably attached to a shutter base plate, and a first spring engaged with said diaphragm actuating member so that said diaphragm actuating member is able to rotate following said driving pin.

7. (Currently Amended) A lens shutter for digital still cameras ~~according to claim 6,~~ comprising:

a motor having a stator including an energizing coil, having a permanent magnetic rotor reciprocatingly movable for a predetermined angular range between an initial position and a final position in accordance with a direction of a current supplied to said coil, and having a driving pin integrally provided with said rotor and extending in parallel with a rotary shaft of said rotor;

at least one diaphragm blade, said diaphragm blade leaving a circular exposure aperture fully open when said rotor is in the initial position, moving to a predetermined exposure aperture regulating position as following said driving pin when said rotor moves from the initial position, and, being returned by said driving pin to a fully opened position of the circular exposure aperture when said rotor returns to the initial position;

a first forcing member constructed and arranged to urge said diaphragm blade toward said exposure aperture regulating position;

at least one shutter blade, said shutter blade leaving said exposure aperture fully open when said rotor is in the initial position, moving together with said driving pin to close said exposure aperture while said rotor moves from the initial position to the final position, and moving together with said driving pin to be returned to the fully open position of said exposure aperture while said rotor returns to the initial position;

a second forcing member constructed and arranged to urge said rotor against a movement for the final position at least during a period from a state where said diaphragm blade is at the exposure aperture regulating position till a state where said exposure aperture is closed by said shutter blade, and to stop said rotor at a rotational position corresponding to the exposure aperture regulating position when said rotor is in vicinity of the rotational position corresponding to the exposure aperture regulating position with the current to said coil being interrupted; and

magnetic holding components respectively disposed at plural places facing a peripheral surface of said rotor, and capable of maintaining the stopped position of said rotor by a magnetic force of said rotor, which acts from said rotor thereto, in a fully opened state and a closed state of said exposure aperture even when the current to the coil is interrupted.

wherein said first forcing member comprises a diaphragm actuating member connected to said diaphragm blade and rotatably attached to a shutter base plate, and a first spring engaged with said diaphragm actuating member so that said diaphragm actuating member is able to rotate following said driving pin, and

wherein said second forcing ~~means~~ member is a second spring wound around the rotation shaft of said diaphragm actuating member and having one end engaged with said diaphragm actuating member and the other end engaged with said driving pin.

8. (Currently Amended) A lens shutter for digital still cameras according to claim 1, wherein when said rotor is rotated from ~~an~~ the initial position, energization of said coil is performed once so that said rotor rotates in a direction in which said shutter blade performs an

ARISAKA -- 09/689,679  
Client/Matter: 061069-0274432 .

opening operation of opening said exposure aperture, and thereafter, energization of said coil is performed so that said rotor rotates in an opposite direction.